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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,255	03/17/2005	Martin J. Edwards	GB03 0024 US	4146

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EXAMINER

CHOWDHURY, AFROZA Y

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2629

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/528,255	Applicant(s) EDWARDS, MARTIN J.	
	Examiner AFROZA Y. CHOWDHURY	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed on **April 28, 2008** has been entered. Currently, claims 1-12 are pending. Amended and newly added claims are addressed herein below.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 1, **“wherein the device is operable in a first mode in which the plurality of sub-pixels of a pixel are addressed simultaneously with a data signal and in a second mode in which the sub pixels of a pixel are addressed individually with respective data signals”** is not described in such a way that enables one skill in the art to understand how two different modes of display be in one display

device. In those two different modes of display, the TFT's are connected in two different ways. How those two different circuit arrangements fit in one display device?

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-5, 7, and 9-12 are rejected under 35 U.S.C. 102(e) as being anticipated by **Edwards et al.** (US 7,230,597).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

As to claim 1, Edwards et al. discloses an active matrix display device comprising

an array of pixels a set of row conductors through which rows of pixels are selected (fig. 1, col. 4, lines 64-67),

a set of column conductors through which data signals are supplied to selected pixels (fig. 1, col. 4, line 64 – col. 5, line 13),

each pixel comprising a plurality of sub pixels which sub pixels are each associated with a respective switching transistor for controlling the supply of a data signal to the sub pixel (figs. 1, 8, 9, col. 4, line 64 – col. 5, line 13),

wherein the plurality of sub pixels of a pixel are coupled to a column conductor associated with the pixel via a common switching transistor through which data signals are supplied to the sub pixels (fig. 1), and

wherein the device is operable in a first mode in which the plurality of sub-pixels of a pixel are addressed simultaneously with a data signal (fig. 9, col. 8, lines 44-48) and in a second mode in which the sub pixels of a pixel are addressed individually with respective data signals (fig. 8, col. 8, lines 35-40) (as best understood).

As to claim 2, Edwards et al. teaches a display device wherein the device comprises drive means for providing data signals to the column conductors and switching signals to the row conductors (fig. 1), and

wherein the drive means is operable in the first mode to switch the switching transistors associated with the sub pixels of a pixel at the same time so as to supply a data signal on the associated column conductor to each sub pixel (fig. 9, col. 8, lines 44-48), and

wherein the drive means is operable in the second mode to switch the switching transistors associated with the sub pixels of the pixel selectively in sequence such that data signals on the associated column conductor are supplied to respective sub pixels (fig. 8, col. 8, lines 35-40).

As to claim 3, Edwards et al. teaches a display device wherein the sub pixels of a pixel are connected in serial manner with the input terminal of the switching transistor associated with the first sub pixel of the series being connected to the associated column address conductor and with the input terminal of the switching transistor associated with each of the other sub pixels in the series being connected to the output terminal of the switching transistor associated with the preceding sub pixel in the series (fig. 9).

As to claim 4, Edwards et al. teaches a display device where the sub pixels of a pixel are connected in parallel manner with the input terminal of the switching transistor associated with one sub pixel being connected to the associated column address conductor and with the input terminals of the switching transistors associated with the other sub pixels being connected to the output terminal of the switching transistor associated with the one pixel (fig. 8).

As to claim 5, Edwards et al. teaches a display device wherein the control electrodes of the switching transistors associated with the sub pixels of a pixel are

connected to respective different row conductors (fig. 8).

As to claim 7, Edwards et al. teaches a display device where the sub pixels comprise liquid crystal picture elements connected to the outputs of their associated switching transistor (fig. 9).

As to claim 9, Edwards et al. teaches a display device wherein the common switching transistor corresponds to the respective switching transistor of one of the plurality of sub pixels (figs. 8, 9).

As to claim 10, Edwards et al. discloses a display device where each of the common switching transistor and the respective switching transistors comprise an input terminal, an output terminal and a gate terminal (figs. 8, 9),

wherein the gate terminal of the common switching transistor is connected to the column conductor associated with the pixel (figs. 8, 9) and

the output terminal of the common switching transistor is connected to at least one of the input terminals of the respective switching transistors (figs. 8, 9).

As to claim 11, Edwards et al. teaches a display device wherein the output terminal of the common switching transistor is connected to each of the input terminals of the respective switching transistors (fig. 8).

As to claim 12, Edwards et al. teaches a display device wherein the output terminal of a first one of the respective switching transistors is connected to the input terminal of a second one of the respective switching transistors (fig. 9).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Edwards et al.** (US 7,230,597) in view of **Ozawa et al.** (US 2002/0018056).

As to claim 8, Edwards et al. teaches an active matrix display device comprising an array of pixels a set of row conductors through which rows of pixels are selected, a set of column conductors through which data signals are supplied to selected pixels, and each pixel comprising a plurality of sub pixels which sub pixels are each associated with a respective switching transistor for controlling the supply of a data signal to the sub pixel (figs. 1, 8, 9, col. 4, line 64 – col. 5, line 13).

Edwards et al. does not specifically teach a display device wherein at least two sub pixels of a pixel are of different areas.

Ozawa et al. discloses an display device where sub-pixels are formed with different areas (fig. 3, [0066]).

Therefore, it would have been obvious to one skill in the art at the time the invention was made to use the idea of Ozawa et al. of using sub-pixels of different areas in each pixel to modify the active matrix display device of Edward et al. in order to provide high quality display.

Allowable Subject Matter

8. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The cited references has failed to teach applicant's claimed invention,

“each pixel comprises first and second sub pixels, wherein the control electrodes of the switching transistors associated with the first and second sub pixels of a pixel are connected to first and second row conductors respectively, wherein, for each pixel, the input of the switching transistor associated with the first sub pixel is connected to the associated column conductor and the input of the switching transistor associated with the second sub pixel is connected to the output of the switching transistor associated with the first sub pixel, wherein the first row conductor connected to one pixel is connected also to the control electrode of the switching transistor associated with the second sub pixel of

another pixel connected to the associated column conductor, and wherein the second row conductor connected to the one pixel is connected also to the control electrode of the switching transistor associated with the first sub pixel of a further pixel connected to the associated column address conductor” in combination with other limitations of claim 6.

Response to Arguments

9. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AFROZA Y. CHOWDHURY whose telephone number is (571)270-1543. The examiner can normally be reached on 7:30-5:00 EST, 5/4/9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2629

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AC

7/20/2008

/Bipin Shalwala/

Supervisory Patent Examiner, Art Unit 2629